

# PHYSICS 1408/1409/1420/1430

## Spring 2021 Laboratory Syllabus

*Failure to read the syllabus will not be an excuse for an exception to any policy stated within the syllabus.*

The objectives of the laboratory are for you to

- Gain practical experience with concepts presented in your lecture section
- Gain familiarity with physical measurement equipment
- Present data and results in a clear and logical manner
- Analyze data and draw conclusions
- Describe and calculate uncertainty.

**Physics Lab Webpage:** <http://www.baylor.edu/physics/labs>

**Lab Supervisor:** Randy Hall, M.S. BSB E312, x2208, [J\\_Randy\\_Hall@baylor.edu](mailto:J_Randy_Hall@baylor.edu)

Office Hours: 9:55 – 11:15 MWF; 1:30 – 2:30 MW

**Required Texts:** For physics 1408/1420: *Baylor University Physics 1408/1420 Lab Handbook.*

For physics 1409/1430: *Baylor University Physics 1409/1430 Lab Handbook.*

**No text required for online only laboratory sections**

### Safety

1. You are expected to be familiar with the entire safety section in the lab handbook. Failure to follow these rules may result in your removal from the laboratory and will have a negative impact on your grade.
2. **Food and beverages are not allowed in the lab room.** You must leave these things outside or keep them in your closed backpacks. This includes personal water bottles! *Students with food or beverage containers in the lab room will be asked to leave the lab room and will receive a zero for that lab. NO exceptions. This is your warning.*
3. **You must wear closed-toed shoes in lab, no sandals.** *If you forget to wear closed-toed shoes then you will be required to leave the lab room, and you will receive zero for that experiment.*
4. **Masks are required to be worn at all times in accordance with University policy. Persons without an appropriate mask will not be allowed to attend the lab.**

### Lab Grade:

1. You may miss ONE in person lab without penalty.
2. Your numerical lab average is provided to your professor at the end of the semester.
3. Your weekly laboratory grades will be entered into *Canvas*. **Check your grades frequently to ensure that your grades have been recorded correctly.** If your grades are not posted or the grades are posted incorrectly, notify your TA or Mr. Hall.
4. **Save all your graded work until the end of the semester** so that if a grade is incorrect, your TA or Mr. Hall can verify the correct grade and revise the recorded grade accordingly.
5. **Ten points will be subtracted from any lab grade changed after noon on April 29, 2021.**
6. **No lab grades will be changed after 4 pm on April 29, 2021.**

**In Person Laboratory:** There are three components: the prelab, the experiment, and the lab report.

Prelabs: A Prelab exercise is required for each in person lab, but not for online labs. Prelab exercises are posted on the physics lab webpage. You will need to print the prelab for each experiment. Your answers

must be handwritten. Prelab exercises are due, *without exception*, at the beginning of the laboratory period. Late prelabs will receive no credit. Submission methods for the prelabs will be explained by your lab instructor. The purpose of prelab exercises is to prepare you for the lab, not to stump you; you are welcome to receive help before lab from the physics tutors. If a large number of students come to lab unprepared, then your TA may give a pop quiz. In this case, the average of the prelab and the pop quiz grade will be used for the prelab grade. PHY 1420 Only: The prelabs for the first 3 in person labs (after the first day exercise) will include a calculus problem to solve. For students needing help getting started with calculus, a calculus primer is available at <https://baylor.box.com/s/w970qxwz0o29wwmm4blvn80k6c734aqo>.

Experiment: Bring your lab handbook to each meeting. The teaching staff will give a brief lecture. Ask questions when you do not understand. After the lecture, groups of two students will work together to collect data. In labs with more than 24 students, students may work in groups of no more than three.

If you do not bring your lab handbook, then take the data on notebook paper. (The teaching staff will not provide data sheets!) Do not assume that you will get data from your lab partner later. Lack of data, because you could not get it from your lab partner, will not be an excuse for a late lab report.

Lab Reports: Some lab reports are to be completed in class while you have immediate access to your lab partner, while others require a longer lab report which may be completed at home. All lab reports are to be submitted online (via Canvas or as an email attachment) to your lab instructor no later than one week following the lab (except for the last lab of the semester, which may be hand written and will be submitted at the end of the lab period in which the lab is performed), using the time between labs to organize and formalize your lab report. The lab report (except for the data pages completed in the lab) must be typed. You must leave the lab room with your own **data in ink** and with **your TA's initials** on the data sheets. You will have 5 points deducted for each day the lab report is late. **Lab reports more than one week late are not accepted.**

Although you may work with your lab partner or others in analyzing your data, you must submit your own lab report, in your own words. You may not submit tables, graphs, figures, or any other parts of a report that are duplicates of someone else's work. You are not allowed to photocopy data sheets. If you are absent, you may not obtain experimental data from other members of your class. Lab reports will be graded on *originality* as well as *completeness* and *correctness*. There is a sample lab report on the Physics Lab Webpage.

Grade: Eighty-five percent (85%) of your lab report grade is from your written lab report and fifteen percent (15%) is from your prelab assignment/quiz for in person labs.

Your lab handbook has a rubric for each in person experiment. **You will turn in that rubric with your lab report**. Your TA will retain the scored rubric for your lab report in case of questions. Most of the rubric is easy to understand. In order to keep the rubric on one sheet of paper, the "Achievements and Flaws in Discussion" section on the rubric is abbreviated. Below is a chart with more details on how that section is graded.

Readability	Points in Discussion	Points
Very easy to read, logical, flows well	80% or greater	+ 5
Okay to read, minor flaws that are not too distracting	80% or greater	0
Difficult to read, major flaws that are distracting <sup>+</sup>	80% or greater	-5 to -15
Very easy to read <sup>*</sup>	80% to 50%	0
Okay to read <sup>*</sup>	80% to 50%	0
Difficult to read <sup>+</sup>	80% to 50%	-5 to -15
All cases <sup>*</sup>	Less than 50%	0 to -15

\* An incorrect or incomplete, but readable, discussion is not an achievement!

- + The amount of points deducted depends on the number of flaws. Five points will be deducted for not being written well. But if the discussion section includes the term “human error” and does not use units with a number in the discussion, and was poorly written, then 15 points will be deducted.

**Videos:** There is a collection of videos showing how to use the lab equipment for most experiments. You are not required to view these. These videos were created to help you better understand the experiment before laboratory. Use the following links to access these videos:

Physics 1408/1420: <https://baylor.box.com/s/5uq8lscm0nzzbts7twovsvz38t3wpxry> Note that the video for experiment 9 is obsolete.

Physics 1409/1430: <https://baylor.box.com/s/u8d1fbl4p3xoemz2tdt63hng80q7has9>

**The Baylor University Honor Code will be strictly enforced.**  
(<http://www.baylor.edu/student%5Fpolicies/index.php?id=32287>)

**Online labs:** Online labs are self-contained and require the performance of a lab simulation using various applications available online without cost. You should read the instructions for each lab carefully, perform the lab simulation, and complete the worksheet required for each lab. Online labs must be submitted online to your lab instructor in the same manner as the in person labs, no later than one week following the scheduled day of your online lab. If your last lab is an online lab, it must be submitted no later than 4 PM on Tuesday, April 27, 2021.

**ABSENCES:** You may miss one in person lab without penalty. The maximum final lab grade is 100. Additional absences beyond one in person lab or any of the online labs that are not submitted are figured as zeroes in determining the final lab grade. There will be a make up lab for those persons with two or more absences from in person labs. In order for a person to be considered absent from a lab the student must have a zero for the recorded grade for the lab. This means that a submitted prelab which results in a nonzero grade for the lab indicates that the student has attempted the experiment and was therefore NOT considered absent for that experiment.

**Changing Lab Sections:** You may not change lab sections without going through the proper registration procedures. You may not attend a lab section other than the one for which you are registered.

**Lab Equipment:** Do not place your book packs on the equipment! The equipment used in these laboratories is often expensive and difficult to replace. If you damage lab equipment, we will send you a bill.

**Special Circumstances:** If you have specific physical or learning disabilities and require special accommodations, please notify Mr. Hall early in the semester, so that your learning needs may be appropriately met. Letters from the Office of Access and Learning Accommodation should be presented to Mr. Hall, not your TA.

**Free Physics Tutors:** Physics tutors are available through the Success Center. Tutoring is done by appointment only through the Success Center.

**Conflicts:** If you have any problem with this course, you should first discuss it with your TA. He/She is there to help. You will find that your TA is generally willing to assist in any way that he/she can. In the event that you encounter a problem that you are unable to resolve with your TA, feel free to contact Mr. Hall.

### **Expectations:**

#### General

1. You will be proactive in understanding what is needed to do well in lab. When you do not understand something, ask!
2. You will only attend the lab section that you are assigned.
3. You will bring your textbook, lab texts, calculator, and writing materials to each lab meeting.
4. You will not assemble or manipulate the lab equipment until told to do so by the teaching staff.
5. You will immediately report anything out of order or a shortage of materials to the teaching staff. You will not substitute equipment between lab tables.
6. You will leave your area neat and organized. (Lab rooms will be randomly inspected by Mr. Hall at least twice during the semester. If, after lab, the lab room is not clean and orderly, then each student in that lab section will have 5 points subtracted from his/her lab report grade for that experiment.)

#### Experiments

7. You will read every experiment prior to coming to class to do that experiment. You will, as thoroughly as possible, examine the physical principles involved with the experiment being performed. It is your responsibility to ask questions about any theory not covered in your lecture. (You will enjoy this course and be more successful if you come to lab each week having prepared for the experiment.)
8. You will turn in the prelab for the experiment at the beginning of lab.
9. You will form teams of two students. Each of you will participate in all aspects of the experiment; you will not break an experiment into "sub-tasks" to be performed separately.
10. You will use the Laboratory Report Record in your lab handbook to keep a record of when you turned in your lab reports.